# Pet travel: should vets do more? A roundtable discussion

Deplazes, Peter

Companion animal

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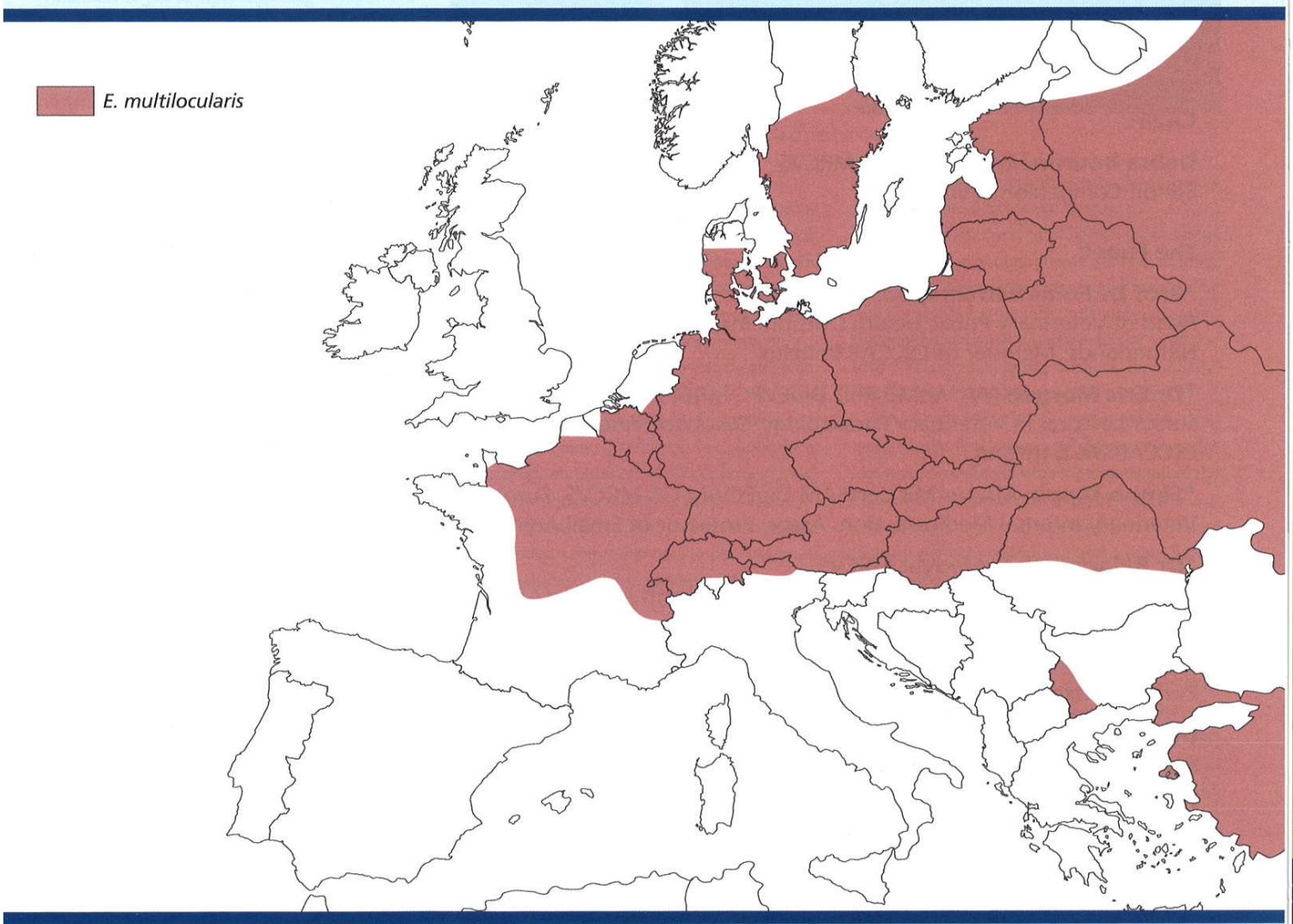
## *A roundtable discussion*

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# Foreword

The EU pet travel scheme aims to enable free movement of pet animals with their owners while keeping the UK free of two important zoonoses: rabies and the fox tapeworm, *Echinococcus multilocularis*, which causes alveolar echinococcosis in humans. However, there are several other important parasitic and vector-borne diseases found in Europe that are not endemic in the UK, which the statutory requirements of the EU pet travel scheme will not prevent. As more pets travel from and back to the UK, it is important that UK veterinary surgeons can provide pet owners with the information they need to minimise the risks of pets acquiring exotic diseases whilst abroad and bringing these back to the UK.

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**Debra Bourne** MA VetMB PhD MRCVS
Editor, Companion Animal

**The Panel:**

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***Simon Tappin** MA VetMB CertSAM DipECVIM-CA MRCVS, European and RCVS-recognised Specialist in Veterinary Internal Medicine, Hon. Assoc. Professor of Small Animal Medicine, University of Nottingham

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ESCCAP Secretariat

* Presenters

# Why ESCCAP?

The European Scientific Counsel for Companion Animal Parasites (ESCCAP) was established after a small group of leading veterinary practitioners, parasitologists and public health scientists met in Switzerland in 2005. They were concerned about the increased risks to human and animal health resulting both from the growth in numbers of pet animals travelling between European countries, and changes in the distribution of significant parasitic diseases.


*The roundtable panel. Balazs Toth presenting (see section four).*

**Frans van Knapen:**

At that time there was no consistency in the information provided by animal health companies on the prevention and treatment of parasitic diseases, with recommendations varying between countries even for the same drug being used against the same parasite. Pet owners could also receive conflicting advice from veterinary advisors in different countries (and within a country), so ESCCAP was established by a group of independent scientists to try to develop a harmonised approach to the treatment and prevention of important veterinary and zoonotic diseases.

The group has since grown to include representatives of national (or regional) associations from 16 countries throughout Europe; so, for example, I represent the Benelux countries of Belgium, the Netherlands and Luxembourg, and the Scandinavian countries are represented by a Danish scientist.

The goal is to ensure that the same information is available and readily accessible for practitioners and pet owners in every country, so the advice provided by the experts is carefully translated into all the main European languages and posted on the central or national websites. It is particularly challenging to ensure that the same advice is offered for everyone using this service in countries such as Belgium, where there is more than one official language.

The advice must also take account of differences in the legislative arrangements on the prescription and dispensing of animal medicines, and cultural differences in the distribution arrangements — so in the Netherlands, for example, it is usually veterinary nurses who give pet owners advice on parasite control for their pets, whilst in other countries it may be the veterinary surgeon, or the products may be on sale in supermarkets or garden centres.

ESCCAP recognises that in different situations there may be a need for detailed advice, or for a simpler explanation of the key issues. So for each of the topics that it has examined, it has produced both full guidelines of up to 20 or 30 pages long and a concise one-page summary.

To date, it has produced five of these guidelines — on worm control, mycoses, ectoparasites, vector-borne diseases and intestinal protozoa. Three more guidelines are currently in preparation, on parasites of 'small furries', diagnostic techniques and equine parasites.

The ESCCAP website (www.esccap.org) also provides information on the distribution of the main disease threats facing pet owners who take their animals away on holiday. So, for example, it has maps showing that the heartworm *Dirofilaria immitis* is present in the countries of southern Europe, the Balkans and Turkey while *D. repens* has a range that extends northwards into northern France, Ukraine and Belarus. These maps are updated every two years to take account of any new information on disease incidents. There may be anomalous disease incidence such as the recent discovery of *D. repens* in a dog in the Netherlands that had never travelled abroad, and if there is further evidence of changing patterns in parasite distribution, the maps will be amended accordingly.

Information on the website is available in different written formats that can be downloaded or ordered from the ESCCAP offices. Travellers need to know what to do to protect their pet dogs (and occasionally cats or ferrets) when holidaying in Europe. Leaflets explain that some parasites found in those areas may also present a significant threat to human health.

The website and ESCCAP publications use a variety of techniques to get the message across, including visual images and humour. The website also helps them to understand the probability of becoming exposed to parasitic diseases, with interactive features, such as flow charts, which analyse the individual risks.

The likelihood of humans coming into contact with the fox tapeworm *Echinococcus multilocularis* has changed with the expansion of the population of urban foxes in many central European cities. One recent study showed that more than 60 per cent of foxes in and around Maastricht in the south of the Netherlands have been exposed to this parasite. The public health authorities in some northern European countries have been slow to appreciate the increased risk, and so it is vital that veterinary practices in those areas are aware of this and provide guidance to their clients. Dog owners in areas where *E. multilocularis* is endemic should be encouraged to worm their dogs every six weeks, throughout the year.

ESCCAP also tries to monitor changes in travel habits, such as the increasing popularity of Romania as a holiday destination for people from northern Europe. Concise information on the specific diseases found in that region is valuable both for visitors and those veterinary surgeons that are required to deal with the growing numbers of dogs imported from eastern and southern Europe. The website also offers links to other sources of information on the various parasites featured.

Veterinary practices can subscribe to a quarterly e-mailed newsletter from ESCCAP, details of which can be found on its website. The organisation works closely with the animal health industry, which provides financial support for its work.

Considerable time and effort is spent in ensuring that the messages contained in ESCCAP literature are the same in all the languages used. The information is compiled initially in English, converted into other languages by professional translators and carefully checked by experts fluent in the relevant languages. Only those materials that have been shown to conform with the original sources are allowed to carry the ESCCAP symbol.

In questions, **Frans van Knapen** was asked who was intended to be the main audiences for the information provided by ESCCAP. He explained that it was equally important to address the information needs of pet owners and their vets. However, the amount of detail required and the way that it was presented would, of course, reflect the specific requirements of those groups.

**Peter Deplazes** noted that the key issue is for the information to reach pet owners, either directly or through their veterinary surgeon. It is important for practitioners to keep up to date and so the information for vets in the guides is intended to meet the level of knowledge required to pass examinations at veterinary school.

In Switzerland, ESCCAP leaflets have been sent to an estimated 50% of dog owners, and they are re-sent on an annual basis to try to encourage pet owners to read and understand the information provided. The Swiss authorities are keen to promote the concept of responsible pet ownership. Prospective dog owners are required to sit an examination testing their understanding of their responsibilities, and they are asked to re-sit the test if they get another dog. Indeed, the controls on pet ownership in Switzerland are more demanding than those for parents!

**Frans van Knapen** suggested that it should be an obligation for all veterinarians to access the information available from ESCCAP at regular intervals, as this information will be up to date — the parasitology text books they bought as veterinary students will not.

**Peter Deplazes** warned that the ability of national ESCCAP associations to carry out their work may be dependent on industry funding. In those countries where products are dispensed without the manufacturer's literature, obtaining sponsorship may be more difficult. It should be noted though that information provided by a neutral source is often regarded as more trustworthy.

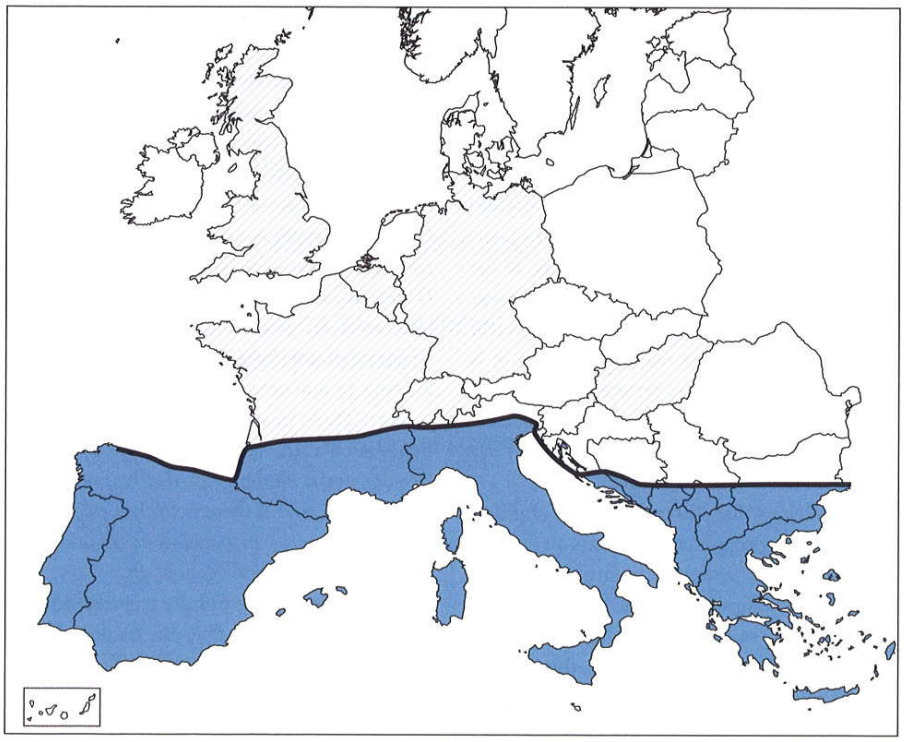
He recognised that it was unlikely that there would be significant support for this work from the public authorities in the countries concerned, so it was essential for ESCCAP to use its resources to target the key audiences — it wasn't enough to make information available on the internet, leaflets should also be distributed at meetings attended by pet owners.

**Frans van Knapen** said that responsibility for informing the public about zoonotic disease threats, such as *Toxocara* spp., should be shared between the veterinary and public health agencies. However, decisions on what activities should be treated as priorities are often based on political, rather than scientific, considerations. A recent outbreak of Q fever in the Netherlands caused relatively mild clinical signs in most of those affected, but because a minority of patients had more serious disease it became a political issue, even though the actual disease burden was less than for diseases such as toxocarosis.

**Eric Morgan** noted there is a danger that the public may not appreciate some disease risks and so believe that veterinarians are overstating the need for regular treatment for financial reasons. He emphasised the importance of social factors in encouraging responsible pet ownership. Some people will respond to social pressures to clear up after their dog, but if they feel they are not likely to be overseen when their animals defecates, many will not act responsibly. There have been limited studies on the effectiveness of anti-fouling measures, he warned.

**Frans van Knapen** observed that research is regularly carried out on the fouling of sandpits in children's playgrounds with *Toxocara cati*. Some researchers have failed to demonstrate any evidence of the parasite at these sites but a more recent study suggests that seasonal factors may be important in determining the risk.

**Peter Deplazes** suggested that infection pressure for *E. multilocularis* may be greater in cities than the countryside, because of the increasing numbers of urban foxes. Seasonal factors will also influence the risk of exposure to this parasite. Veterinary practitioners must try to explain the risks to dog owners, encourage them to clean up after their pets and to provide regular worming treatment, especially if the dogs are likely to eat rodents or to investigate dog or fox faeces.



*Distribution of* Leishmania infantum *in Europe, data to 2012. (Map courtesy of ESCCAP)*

# Protecting the health of travelling pets: should vets do more?

The Pet Travel Scheme allowing companion animals to move between EU member states without undergoing quarantine was introduced in 2001 and underwent significant changes in 2012 and again at the end of 2014. The UK and other rabies-free EU states have been allowed a series of derogations from EU-wide rules on free movement of people and goods. As the EU pet travel scheme does restrict the movement of pet owners, such derogations need to be supported by a strong public health argument.

**Eric Morgan:**

Simplified arrangements on rabies vaccination were among the main 2012 changes to the EU pet travel scheme, as treated animals from EU member states and approved third countries no longer have to undergo a blood test to prove seroconversion. The requirement for dogs entering the UK to have been treated against ticks was also dropped in 2012, and while the need to treat against the tapeworm *Echinococcus multilocularis* was maintained, the treatment window was extended to between one and five days before entry, rather than one to two days.

These changes were unpopular among some people, including many vets, but they must realise that the scheme was set up to safeguard human health, with the protection of canine health being a secondary issue. The arrangements are also intended to be proportionate to the risks involved, and it has been possible to relax the rules as a result of the eradication of rabies from much of western and central Europe.

There were a number of reasons for abandoning tick treatment, including a belief that the rules were ineffective, a downgrading of the importance of tick-borne zoonoses, the risk from Mediterranean Spotted Fever being considered low, and, perhaps, a political trade-off over retaining the more important tapeworm arrangements.

The Brown dog tick *Rhipicephalus sanguineus* was the main reason for the acaricide treatment, as the other main vector of tick-borne disease in Europe, the Ornate cow tick *Dermacentor reticulatus*, is already present in the UK. Both species are capable of transmitting babesiosis to dogs, while *R. sanguineus* is also responsible for the transmission of canine monocytic ehrlichiosis and hepatozoonosis.

While the latter two conditions do not occur in the UK in the absence of the main vector, there have been some cases of babesiosis in dogs that have not travelled abroad. However, Bristol veterinary school colleague **Séverine Tasker** confirmed that the great majority of babesiosis cases identified in the UK have been in imported dogs.

Treatment against the heartworm *Dirofilaria immitis* has never been part of the pet travel scheme arrangements, but the need for anthelmintic therapy for *E. multilocularis* has had some secondary effect in controlling this parasite [because although praziquantel, used against *E. multilocularis*, is not effective against *Dirofilaria* spp., sometimes it is used in a formulation combined with an agent which is effective]. The Culicidae mosquitoes responsible for transmitting *D. immitis* in southern Europe are also present in the UK, although the heartworm itself is not. This contrasts with the situation for leishmaniosis in which the parasite is present in some dogs in the British Isles, with around 60 confirmed cases a year (almost entirely in imported dogs), but the main vector, the sand fly *Phlebotomus* spp., is not.

The development of *D. immitis* in mosquitos is temperature-dependent, with a minimum threshold of 14 °C and a total incubation period of 130 'degree days' required to complete larval development within the insect's 30 day lifespan. As a consequence, only one year in 15 in the UK is thought to be warm enough for the parasite to transmit successfully, although this may change in future as a result of climate change.

*E. multilocularis* is not established in the UK, although it has been detected in zoo animals and in European beavers in Devon, imported from Bavaria. However, the parasite is an emerging threat in Europe, with a range that has extended northwards and westwards in recent years. This has been linked to the growth in fox numbers, especially in cities. As a country with a considerable urban fox population, it was a relief that the UK was allowed to retain its rules on tapeworm treatment. The significance of this parasite as a human disease cannot be overstated — if untreated, the liver lesions have a 90 per cent fatality rate and, as **Peter Deplazes** of the University of Zurich noted, a typical human case may cost more than €100 000 in medical care and lost income for the patient. With this large fox population, and an abundance of rodents suitable as intermediate hosts, it is nigh on certain that the disease could become endemic in the UK if it was introduced.

The likelihood of any disease entering the UK is a function of the numbers of dogs entering the UK multiplied by the chances of those animals being infected, so it is clear from Defra figures that the risks are increasing: the numbers of dogs entering the UK rose steadily in the years following PETS to around 80 000 a year, before increasing markedly to about 150 000 with the relaxation of controls in 2012. A study by Susan Shaw and others in 2003 showed that 32% of dogs arriving under PETS carried at least one exotic pathogen, usually *Babesia* spp. or *Leishmania* spp..

Similarly, the National Tick Survey published in 2009 showed that pet owners may not notice tick infestations on their dogs. At 15% of the 173 practices taking part in the survey, more than 50% of dogs chosen at random from the normal workload were infested. *R. sanguineus* ticks could also arrive in the UK as unwanted passengers in the upholstery of cars travelling from mainland Europe, and while tick treatment may not be 100% effective, the absence of a requirement to treat will substantially increase the risks of exotic tick introduction.

The risks of introducing exotic parasites through pet travel depend strongly on where those pets are travelling. However, at present there is no system for capturing such data One study of pets travelling on a main ferry carrier did confirm that the majority of travelling pets were from suburban locations in the south of England.

While the main focus is on dogs entering the country under the EU pet travel scheme, there is also a significant risk of disease importation in street dogs adopted by tourists visiting those countries where there is endemic disease and then brought back to the UK.

Many of the countries where these exotic diseases are present are readily accessible within a two-day drive from Calais. Under the old regime, knowledge of the travel scheme requirements was considerable in veterinary practices in northern France, but vets in more distant areas may be less familiar with the rules.

Research at Bristol veterinary school shows that the pet-owning public relies on advice from their veterinary surgeons to protect their pets if they are to be taken abroad. There are varying levels of awareness among pet owners about the threats posed by different diseases: many clients admitted being unfamiliar with many diseases; some knew of their existence but didn't know how to treat them; and only a minority were aware of what they needed to do to keep their pet safe. All but a small minority accepted the need for some restrictions on the movement of their animals, and opposition to untrammelled movement was actually greater in those clients that were familiar with the process.

Whilst around 75% of clients were satisfied with the information provided by their veterinary practice on pet travel, it is worrying that around a quarter of those asked did not think that they were given sufficient information. This demonstrates a clear opportunity for veterinary surgeons to become more involved in giving advice on the protection of these pets.

Changes to the EU pet travel scheme rules have shifted much of the responsibility for safeguarding animal health onto owners. The veterinarian's place will therefore need to change from a statutory to an advisory role, so rather than providing a box-ticking service to show compliance under the old system, vets need to become more proactively involved in helping their clients. They must offer solutions that are economically appropriate, and are tailored to the individual needs of both the client and their animals.

During the discussion, **Séverine Tasker** noted that there is a widely-held misconception that the EU pet travel scheme is designed to protect the pet. She suggested that veterinary nurses could be trained to provide the necessary advice to clients in dedicated travel clinics.

**Eric Morgan** acknowledged that there may be insufficient time for veterinary surgeons to discuss these issues in a standard consultation, but the introduction of specialist travel clinics would show clients that these were important issues that might well not be tackled through the sort of simple clinical protocol which vets and their clinics would prefer. Anyone travelling abroad would expect to take responsibility for safeguarding their own health, and the same principle should apply for pet owners.

**Balazs Toth** said that there was a considerable challenge in communicating with pet owners on how to look after their animals. The Defra website (www.gov.uk/) was a convenient source of practical, usable advice and also provided visitors with links to other respected sources. He recommended the ESCCAP website as a tool that can be used by pet owners to assess the risks to their animals when travelling to particular destinations and what mitigation measures might be necessary.

**Peter Deplazes** noted that travel medicine has become a recognised speciality within human medicine, and it may be appropriate now to try to develop the same level of expertise among the veterinary profession.

**Debra Bourne** highlighted the potential value of social media in improving public knowledge of exotic disease. This information could be presented in convenient 'bite-sized' segments by way of Tweets, with links to the appropriate ESCCAP page and other useful websites (e.g. www.cvbd.org and www.gov.uk/).

**Balazs Toth** agreed on the need to supply information in the form of leaflets and online as pdfs, but believed there is a danger of overloading pet owners with too much information. The goal must be to provide targeted information, such as the personalised advertisements that appear on screen for internet users who have shown an interest in a particular topic.

**Laura Stokes** explained that the ESCCAP UK & Ireland website (www.esccapuk.org.uk) was undergoing a major revamp which it is hoped would be ready by April/May, in time for the main holiday season. This includes the implementation of a 'Travelling Pets Timeline' which will provide tailored information to pet owners and veterinary professionals to explain issues such as the timescale and requirements needed to prepare an animal before it is ready to travel, and how to effectively protect it from acquiring diseases whilst abroad.

**Ronan Fitzgerald** suggested that the process of educating clients should begin at the puppy clinic stage. Puppy owners are always keen for information on caring for their new pet and would welcome advice on travelling as part of the material provided in 'puppy bags'.

**Séverine Tasker** drew attention to the risks from tourists adopting street dogs that they have befriended abroad. Many veterinary colleagues were baffled that the UK should be importing such dogs when domestic shelters were full of suitable pets.

**Balazs Toth** admitted that there was nothing the UK government can do under EU regulations to prevent such imports if the appropriate procedures are followed. His Defra colleague, Victoria Mason, noted that the Department was keen to engage further with this sector and improve its understanding of these movements. The focus would have to be on advising the charities involved in 'rescuing' these animals to ensure that they are aware of their responsibilities. Private veterinary surgeons would play a key role in this process.

**Peter Deplazes** said he had found many owners were aware that a dog was suffering from leishmaniosis before bringing it to Switzerland but felt justified because the animal would not survive in its original home. If properly treated, these patients could be managed and would not present a risk to human health as the vector did not survive north of the Alps.

**Ronan Fitzgerald** pointed out that the risk of dog to human transmission of leishmaniosis may be low, but the possibility cannot be ignored completely. There have been a few cases of this disease in the UK involving dogs that have never travelled abroad (Harris, 1994; Shaw et al, 2009)

**Peter Deplazes** suggested that colleagues should also be alert to entirely new disease risks for European pets. The Asian eye worm *Thelazia callipaeda* has recently become established in Italy, and has spread across other parts of southern Europe with the fox as the principal reservoir. There would be a significant public and animal health risk for the UK if this parasite was introduced in a travelled dog and then established a foothold in the British fox population.

Harris MP (1994) Letter: Suspected transmission of leishmaniasis. Vet Rec 135: 339

Shaw SE, Lerga AI, Williams S, et al (2003) Review of exotic infectious diseases in small animals entering the United Kingdom from abroad diagnosed by PCR. Vet Rec **152**:176-7

Shaw SE, Langton DA, Hillman TJ (2009) Canine leishmaniosis in the United Kingdom: a zoonotic disease waiting for a vector? Vet Parasitol 163: 281–5

# Pet travel in practice: how best to advise our clients?

Since the PETS system was introduced there has been an increase in the number of patients seen in first opinion veterinary practice with exotic conditions such as leishmaniosis, heartworm and the various tick-borne diseases. However, the overall number of cases is still relatively low, and few clinicians will see them regularly enough to develop any substantial experience in their diagnosis and treatment. Therefore referral practitioners can provide valuable advice on the management of these frequently-problematic conditions.

## Simon Tappin:

The PETS system provides a number of benefits: allowing families to holiday abroad with their pet, allowing freer movement of animals for other purposes (such as dog shows) and facilitating the development of international canine-based sports, such as agility competitions.

However, there are also some disadvantages arising from the relaxation of movement controls. They include the costs to pet owners, the increased risk of disease for their animal, the threat of imported disease for the country, and the various practical problems involved in managing the scheme.

He believes that pet owners need to understand that the primary objective of the PETS system is not the individual welfare of their pet, but to ensure that the UK remains free of rabies and *Echinococcus multilocularis*.

Pets that travel to and from the Continent under the scheme are required to be vaccinated against rabies, but there is no longer any requirement for the animal to be blood-tested to confirm that it has seroconverted. This may be significant in some individuals, notably members of breeds like German Shepherd Dogs and Labradors, in which some dogs may not demonstrate a protective response. The animal can travel from 21 days after receiving the vaccination.

When advising clients who are considering taking their pet on holiday to southern Europe, they must be made aware of the potential risks of diseases endemic to that region. The most commonly imported disease is leishmaniosis, which is endemic throughout the Mediterranean region. As a result of travel and imported animals, clinical cases have now been seen in many dogs in northern European countries, including the UK. The numbers of UK cases is not known, as submissions to Defra's DACTARI reporting scheme is no longer active; even when it was running, submissions were voluntary, therefore the official statistics were likely to have underestimated cases. However, 257 incidents were recorded between 2005 and 2007 in a paper by Dr Susan Shaw et al (2009), of which the majority had spent at least six months abroad. In contrast, the figures for cases in Greece, Spain and Italy are likely to be fairly reliable, as the disease is reportable in those countries.

The disease is transmitted via the bite of the sand fly (*Phlebotomus* spp.) and is mainly a disease of dogs. There have been suggestions that it may be transmitted from dogs to humans, particularly if immunosuppressed, but the public health risk from direct transmission in this way is not considered to be great.

The parasite causes clinical signs of lethargy, weight loss, enlarged lymph nodes, hyperkeratotic footpads, and exfoliative dermatitis, usually around the eyes, ears and muzzle. The parasite sets off a chronic inflammatory process in which many features, such as polyarthritis and glomerulonephritis, are a result of this abnormal immune activity.

Pet owners need to be aware of the long incubation period of three months to several years seen with this disease, and veterinarians seeing a suspect case would need to delve deep into the patient's history to find out where and when it might have been exposed. Certain breeds appear to be at particular risk, including German Shepherd Dogs, Boxers, Rottweilers and Cocker Spaniels.

Once confirmed, treatment can be lengthy and difficult, and the goal is likely to be management of the disease rather than a complete cure. Each of the three main treatment options — allopurinol, antimonials and miltefosine — has its pros and cons. The most common management strategy would involve a month of treatment with allopurinol, alongside either the antimonial drug meglumine antimonite (Glucantime®) or oral miltefosine (Milteforan®), followed by long term control with allopurinol. Neither meglumine antimonite nor miltefosine are specifically authorised for use in the UK, but they can be readily imported following approval by the Veterinary Medicines Directorate.

Leishmaniosis is certainly one disease for which prevention is better than cure and for this, there is a new option with the introduction of a *Leishmania* vaccine (CaniLeish: Virbac). As *Leishmania* is an intracellular parasite, the vaccine is intended to generate a Th1 cellular immune response. The product does not have 100% efficacy, but it does appear to reduce the risk of infection by roughly fourfold, and may be expected to show greatest efficacy in low-risk areas.

If vaccination is used, it should be accompanied by other measures to reduce exposure, such as permethrin spot-on products or deltamethrin collars. Owners should also consider minimising their pet's exposure to sand flies, by avoiding infested areas in the April to November period when the flies are most active, keeping the animal indoors from dusk until dawn, and using small gauge (less than 0.4 $mm^2$) nets.

The heartworm *Dirofilaria immitis* is found relatively commonly infecting dogs across large areas of southern Europe, but is found less frequently in cats. Its range is determined by the presence of the mosquito vector and environmental temperatures, and for reasons discussed earlier by Eric Morgan, it is unlikely to become established in the British Isles under existing climatic conditions.

The usual clinical presentation is of cardiovascular signs such as pulmonary hypertension, thromboembolic disease and right-sided heart failure. An established infection leads to problems as the adult worms are up to 30 cm long and, if killed, the dead worms will settle in the pulmonary bed, leading to ventilation-perfusion mismatch.

Monthly preventive treatment with moxidectin-, milbemycin- or selamectin-containing products can be used. All are safe and effective, even in breeds such as Rough Collies, which are sensitive to ivermectin treatment due to defects in the MDR-1 gene.

Babesiosis is caused by infections with various *Babesia* parasites, including *B. canis canis*, spread by the tick *Dermatocentor reticulatus*, which is known to be established in parts of the UK. The Brown dog tick, *Rhipicephalus sanguineus*, responsible for the transmission of *B. gibsoni* and *B. canis vogeli*, is not currently found in the UK, but could theoretically survive indoors under existing climatic conditions.

Treatment should include Imizol® (imidocarb) (two treatments being given 14 days apart), doxycycline in case of concurrent ehrlichiosis and aggressive supportive care. Use of steroids is not recommended unless extreme agglutination is present, as it can reduce the clearance of the parasite. Prevention can be achieved through appropriate tick prophylaxis and prompt removal of any ticks found on the dog. *Babesia* parasites are transmitted late in the feeding process, often 24–48 hours after attachment, thus prompt removal will substantially reduce the transmission of parasites.

Babesiosis is currently not considered an endemic condition in the UK, and almost all cases so far have occurred in dogs that have travelled abroad. However, one case was reported in an untravelled dog (Holm et al, 2006). As *D. reticulatus* is present in the UK, there is the possibility of the disease becoming established in these islands.

Finally, *Ehrlichia canis* is another tick-borne parasite, which affects white blood cells, specifically monocytes. It is transmitted by *R. sanguineus*, found in southern Europe and many other parts of the world. Classic ehrlichiosis is not found in the UK, however the closely related rickettsial condition canine anaplasmosis (which used to be known as canine granulocytic ehrlichiosis), is occasionally reported.

German Shepherd Dogs are known to be particularly susceptible to ehrlichiosis, which causes clinical signs of fever, anorexia, lymph node enlargement and pancytopaenia in the acute phase. Affected dogs either recover or go on to develop chronic disease, with variable signs relating to bone marrow dysfunction, with bleeding disorders, recurrent infections secondary to leucopaenia, and anaplastic anaemia; rarely, animals may also develop neurological signs.

The recommended treatment is doxycycline 10 mg/kg once daily for three weeks, although imidocarb is occasionally used in chronic and unresponsive cases. Supportive treatment includes blood transfusions and antibiotic cover.

Preventive treatment is similar to that used against babesiosis, involving rapid tick removal and suitable tick prophylaxis. As the main vector is not present in the UK, it is not considered an endemic disease, although there have been cases in dogs with no history of travel outside the British Isles (Wilson et al, 2013).

So the discussion with clients who are considering taking their pet abroad should begin with an assessment of whether they should consider leaving the animal in the UK, in view of the likely disease risks. Those owners that are insistent on taking their animal away should be made aware of the need for acaricidal treatment and prompt tick removal, along with preventive measures to reduce exposure to sand flies in affected areas. Prophylactic treatment against heartworm should be encouraged where necessary, and the possibility that the animal may need continued treatment for 4–6 months after its return to the UK should be raised.

In questions, **Peter Deplazes** described incidents of babesiosis in Switzerland involving infections in very localised areas, which have resulted in the deaths of one or two dogs. Once local veterinarians are aware of the risk, treatment is begun more quickly and most affected dogs will recover. The role of the local veterinary society in informing members of these incidents is crucial to achieving a rapid response.

**Balazs Toth** considered that such a warning system would be extremely valuable. The manufacturers of relevant treatments would be in a position to identify emerging problems and could inform local practitioners whose clients may be at risk.

**Eric Morgan** regretted that voluntary scheme for practitioners to report disease outbreaks tend to have a poor uptake. **Séverine Tasker** suggested that existing websites such as the University of Guelph's Worms and Germs Map at www.wormsandgermsmap.com/ made it relatively easy to input high-quality information, despite which it can be difficult to encourage veterinary surgeons to use the service and enter data.

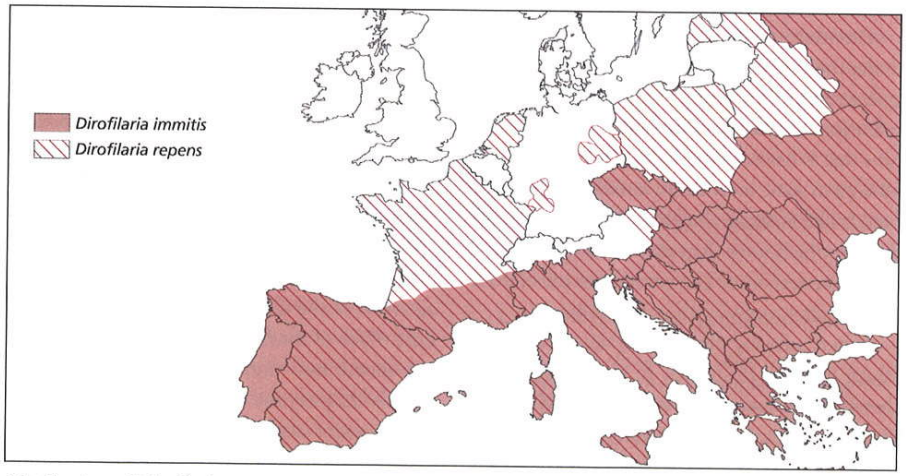
**Frans van Knapen** insisted that for such databases to be reliable, users must have confidence in the pathologist responsible for confirming any diagnosis. In the Netherlands, there is a service supported by the public health authorities that sends out prompt emails to medical and veterinary practices notifying them of developments in zoonotic disease risks. **Balazs Toth** said APHA runs a service to notify registered users of disease incidents. Registration is free (http://animalhealth.system-message.co.uk/AH_subscribe_index.php); he would expect that the information would be quickly passed on to colleagues.

**Peter Deplazes** expressed concern that pet owners that have their animals vaccinated against leishmaniosis using the new product may not appreciate the need to continue preventive measures to control exposure to sand flies. **Séverine Tasker** agreed that there was a need for a multimodal approach. In her experience, the antibody response induced by the vaccine was of a relatively low-level and short lived (cell-mediated immunity is more important for protection from leishmaniosis than is antibody response), and hence may not interfere with diagnosis of natural infection as much as initially thought.

Holm LP, Kerr MG, Trees AJ, McGarry JW, Munro ER, Shaw SE (2006) Fatal babesiosis in an untravelled British dog. *Vet Record* **159**: 179–80

Shaw SE, Langton DA, Hillman TJ (2009) Canine leishmaniosis in the United Kingdom: a zoonotic disease waiting for a vector? *Vet Parasitol* **163**: 281–5

Wilson HE, Mugford AR, Humm KR, Kellett-Gregory LM (2013) *Ehrlichia canis* infection in a dog with no history of travel outside the United Kingdom. *J Small Anim Pract* **54**: 425–7




*Distribution of* Dirofilaria spp. *in Europe, data to 2015. (Map courtesy of ESCCAP)*

# EU pet travel: changes in the regulations and situation update

An EU-wide pet travel scheme was introduced in 2004, based on the arrangements introduced three years earlier for animals travelling to and from the UK. Then in 2012 the EU and UK rules were harmonised, bringing an end to the mandatory quarantine of pets. Through these changes the role of Defra has been to provide advice to animal owners and conduct investigations into suspected cases of notifiable diseases.

## Balazs Toth:

The question posed earlier was 'Should vets do more to ensure the safety of travelling pets?', and for that, the only answer can be 'Yes'. The reason is not that Defra is doing less, but a recognition of changing circumstances. Government resources are shrinking and so the direction of policy is to ensure that all stakeholders — animal owners, vets, industry and others — share the responsibility and resources needed to protect human and animal health. While the overarching aim of the EU pet travel scheme is to keep the UK free of rabies and *Echinococcus multilocularis* (fox tapeworm), it is essential for pet owners to seek advice from vets on managing other disease risks.

The changes introduced in the scheme in 2012 were based on risk assessments carried out by various bodies including Defra. It was concluded that the new arrangements on rabies may create a slightly increased risk in quantitative terms, but not in qualitative terms. It was estimated that the likelihood of a rabies-infected animal entering the country and causing an outbreak would still be very low — an event that would occur only once in 211 years.

Any impact on the risk of tick-borne disease is difficult to measure. Under current climate conditions, it was considered unlikely that the key vector *Rhipicephalus sanguineus* would become established in the UK, but there was a possibility of an increase in localised, medium-term risks. There is, however, a clear risk of *E. multilocularis* entering the UK unless mandatory anthelmintic treatment is retained, and that was the main focus of UK government strategy.

Changes to the rabies-control arrangements were made possible by the continuing fall in the numbers of cases across Europe. There were only around 200 cases in the EU in 2011, less than one-tenth of the number a decade earlier, and across the 28 current member states there has been a 60% reduction in cases since 2009. Control measures have been particularly successful in countries like Croatia and the Baltic states. There are still problems in some countries such as Poland and Romania, but these are being addressed.

In contrast, the east- and northwards extension in the range of *E. multilocularis* has significantly increased the risks of this pathogen to public health, and there was strong support for specific control within the EU. The UK is currently free of this parasite, but it has been made a notifiable disease even though it causes few clinical signs in dogs. A surveillance programme is now in place to monitor the UK fox population. The extension in the window for tapeworm treatment, from 24–48 hours to 24–120 hours before entering the UK, may help to improve levels of compliance.

So now the rules for pets entering the UK from the EU and other listed countries require microchipping, rabies vaccination with a 21-day wait to allow for seroconversion, the issuing of a pet passport, together with the tapeworm treatment within the correct time window prior to entering the UK. Pets arriving from unlisted countries will require lengthier procedures — involving microchipping, vaccination (with a 30 day wait) before being blood tested for the presence of protective antibodies, and a further three month wait before certification and import.

It must be emphasised that the Pet Travel Scheme was designed to protect humans and animals by allowing the safe movement of rabies-susceptible animals. Such animals are covered by the regulations because their owners are travelling between EU member states. Those arrangements are not intended to cover animals being transported for sale or rehoming, and these are subject to additional controls intended mainly to ensure their traceability and to safeguard their welfare during transport.

Such movements are covered by the Balai Directive, which covers international trade in a number of animal species and genetic material. This requires the premises of origin of the animal to be registered, a clinical examination, advance notification of the journey to the authorities of the importing country, inputting the details of the journey into the EU's TRACES database, and compliance with the relevant welfare regulations.

Those changes introduced in 2012 have led to a significant increase in the numbers of pet animals arriving in the UK. About 60% of movements into or from the UK are based on pet passports issued here, and the great majority (80%) of movements are linked to paperwork issued in five countries: the UK, Germany, France, Spain and the Netherlands. Imports to the UK from countries in Eastern Europe accounted for 7.7% of the numbers in 2014, up from 3% in 2011.

An update to the EU pet travel scheme regulations came in to effect on December 29, 2014, which retained all the main aspects of the existing regulations but established additional requirements to ensure the security of the system and the traceability of the passport.

These changes set the minimum qualifications needed for those implanting microchips; a new minimum age of 12 weeks for animals receiving rabies vaccinations; a new passport and third country certificate; requirements for record keeping by vets; clearer definition of what constitutes a 'dog', 'cat' or 'ferret'; a maximum four month quarantine period for animals found to be non-compliant; additional rules and a stricter definition of non-commercial movements; a requirement for all EU countries to carry out some checks for compliance with the rules; and certain derogations covering the movement of animals from low risk countries.

Whilst it is hoped that these arrangements will be successful, Defra also has a responsibility for contingency planning in the event of a rabies outbreak in the UK. It has set up a

body called the Rabies Core Group to assist in contingency planning. The last UK incident was in Camberley in 1969, but recent experience in France has shown how such incidents can be effectively controlled, albeit with associated costs.

Defra has taken considerable steps to communicate these changes to the pet-owning public, issuing guidance documents, updating its web page and and setting up a pet travel helpline supported by trained staff. These arrangements have been effective, with more than 500 000 hits on the departmental website and 55% of calls to Defra concerning enquiries to the helpline. The department has also held a series of meetings with key stakeholders such as the BVA, issued information via social media and held a webinar (organised by the BVA) for veterinary practitioners. Nevertheless, further efforts are still needed as in 2014, a total of 497 animals were taken into quarantine for non-compliance with the existing rules, with 34% of these coming from just three countries: Hungary, Poland and Lithuania. In a large proportion of these cases, the documentation was faulty because the animals had been vaccinated when too young.

Both the UK and EU authorities are aware of an illegal trade in puppies and are taking steps to control this. With the possibility of a legal route for the movement of young animals, it was likely that some would try to abuse the system for financial gain. Whilst attempts are being made to work with other EU countries to ensure that pet passports and other health certificates are correctly certified, efforts should also be focused on controlling demand. Potential owners need to be aware of the importance of seeing their puppy with its dam and to be aware of the welfare implications of the illegal trade — although this is certainly difficult because of the financial and emotional pressures involved.

So veterinary practitioners will play a key role in ensuring the new system operates effectively. They will be responsible for preparing the animals for travel, and be aware that the regulations cover pets traveling between other countries outside the UK. They would need to advise owners on those situations in which a pet may need continuous prophylactic treatment whilst abroad, rather than simply arranging for the tapeworm treatment immediately before its return. Another important duty is to explain the welfare implications of the proposed trip, and to help the owner decide whether such a journey would be in the animal's best interests.

Veterinary practitioners are also often the first point of contact after someone buys a puppy, and therefore play an important role in verifying that any passport has been properly completed and that the appropriate treatments and vaccinations have been given. In cases where the veterinary surgeon suspects an illegal landing, they must know where and how to report those suspicions (to their local Trading Standards office).

In situations where rabies is suspected, the protocols are different, and APHA should be contacted immediately. Defra would encourage practitioners to report such cases while the animal is still alive, so that its behaviour can be assessed, rather than relying entirely on post-mortem examination findings. An APHA veterinary surgeon will respond immediately to a call and be on-site as fast as the circumstances allow. The department would encourage all practitioners to keep the local APHA number on their mobile telephones to ensure that they can make immediate contact.

During the following discussion, **Laura Stokes** asked for clarification on the arrangement covering the Channel Islands and the Isle of Man, since these are not officially part of the UK. Confirmation was also requested that Northern Ireland was still considered as part of the UK for the purposes of the pet travel scheme.

**Victoria Mason** replied that for the purpose of EU animal health regulations, both the Channel Islands and the Isle of Man are considered part of the UK. However, pet owners are advised to check all eventualities, particularly if they will also be visiting France or another EU country (for example when travelling by private boat).

Pets travelling between the UK and the Irish Republic should be compliant with the EU-wide rules, so a pet entering Great Britain from Northern Ireland having passed through the Republic would need to have a properly completed passport.

**Ronan Fitzgerald** noted a charitable organisation's claim that many of the puppies illegally imported into the UK were from the Irish Republic. Was this correct?

**Victoria Mason** acknowledged that reliable data on the illegal puppy trade (from any country) was difficult to obtain as this is covert activity. The rabies risks from a puppy illegally presented as a pet animal but actually intended for sale would be the same as for a legitimate import, as the same treatments would still have been given, but the ability to trace the puppy's origins and protect its welfare during the journey is lost. All the time that such puppies are readily accessible and cheaper than those from reputable breeders, the problem was likely to remain, hence the need for owner education. Every pet travelling on an approved route to the UK and declared to the carriers will be checked for compliance with the EU pet travel scheme (irrespective of the time of day, or the day of the week).

**Balazs Toth** said that the new minimum age for rabies vaccination and the new passports would limit the opportunities for illegal imports, because the demand is for younger animals. However, the authorities are aware of the risk that making regulations too stringent will drive the trade further underground. In cases of inaccurate or incomplete paperwork for an imported animal, it is now easier to trace and contact the issuing veterinarian, and Defra is working with the authorities in those countries to ensure that correct paperwork is provided.

**Séverine Tasker** queried how extensive the clinical examination for an animal imported under the Balai Directive would have to be, as there have been cases of street dogs imported by rescue charities with evidence of *Leishmania* spp. infections.

**Victoria Mason** explained that the examination was intended to prove that the animal was healthy and fit for travel. If dogs are arriving with obvious lesions this is something that Defra would look into.

**Debra Bourne** noted that zoos importing captive wild animals under the same Directive were required to follow stringent rules on the health of the animals concerned and it would seem strange if domestic animals were allowed to travel with considerably less attention.

**Peter Deplazes** pointed out that a large percentage of street dogs in Mediterranean countries have skin lesions of some form, possibly unrelated to *Leishmania* spp. infections. If this criterion was used to deny entry then that would certainly solve the problem of people importing such dogs when there are already healthy dogs available in the home country.

**Cover image:** Distribution of *Echinococcus multilocularis* in Europe, data to 2015. (Map courtesy of ESCCAP)